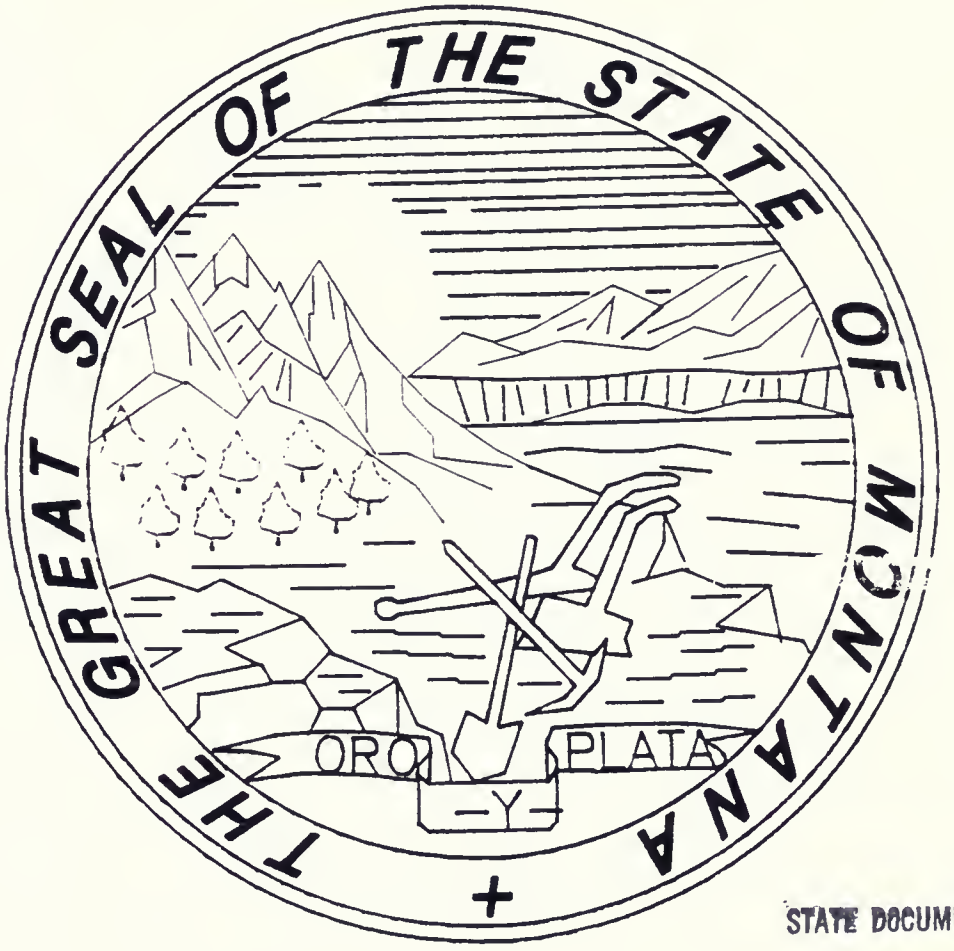
FOREST TAXATION IN MONTANA

A STUDY OF MONTANA'S CURRENT FOREST PROPERTY TAX SYSTEM, THE PRODUCTIVITY TAX, THE YIELD TAX AND THE SEVERANCE TAX



January, 1990

Published by

MONTANA DEPARTMENT OF REVENUE

Prepared by

Randy Piearson

Mitchell Building

Helena, Montana 59620

FOREST TAXATION IN MONTANA

A STUDY OF MONTANA'S CURRENT FOREST PROPERTY TAX SYSTEM, THE PRODUCTIVITY TAX, THE YIELD TAX AND THE SEVERANCE TAX

January, 1990

Published by

MONTANA DEPARTMENT OF REVENUE

Prepared by

Randy Piearson

Mitchell Building

Helena, Montana 59620

TABLES OF CONTENTS

INTRODUCTION

The Department of Revenue prepared this document to aid Montana policy makers in understanding forest taxation issues. The document is organized into the following sections:

I. Synopsis
II. History of Forest Taxation in Montana
III. Forest Tax Systems Found in the Northwest
    1. Explanation of the Tax
    2. Potential Revenue
    3. Cost to Administer the Tax
IV. Comparison of Montana's Standing Forest Inventory Tax to Other Forest Tax Systems in the Northwest
V. Advantages and Disadvantages of Forest Tax Systems
VI. Appendix

SYNOPSIS

There are four basic forest tax systems currently used in the Pacific Northwest. They are: standing inventory, productivity, yield and severance tax systems. The standing inventory and productivity system are annual property taxes. The yield and severance tax are excise taxes in lieu of annual property taxes on the timber. All states, including British Columbia, have an annual property tax on the bare land under the timber.

Montana is the only state in the Northwest, including British Columbia, that has not adopted a productivity, yield or severance tax system. Montana is one of two states in the Northwest which does not tax public timber.

In 1989, the Legislature focused briefly on several forest taxation issues--ranging from productivity and yield taxes to taxing unprocessed logs leaving the state. None of the proposed bills on timber taxation made it out of committee.

In 1985, the Legislature passed 15-6-143, MCA, which moved commercial timberlands from property tax class 3 (agricultural) to property tax class 13 (commercial timberlands) and defined the methodology to adjust the tax rate. Due to a "Sunset Clause" in 15-6-143, MCA, commercial timberland will revert back to property tax class 3 (agriculture) on January 1, 1991. The property tax rate which was adjusted to 3.84 percent January 1, 1986 will increase to 30 percent.

The tax revenues generated and the administrative costs associated with the four different forest tax systems will vary considerable depending on the intent of the legislature. Figures are provided in this report for illustration and educational

purposes concerning the four tax systems.

In general, the standing inventory system has the highest administrative costs, followed by the yield tax, then the productivity tax. A severance tax is used as a minor revenue source and is not considered a primary tax system. Montana has not maintained it's standing forest inventory tax system at current stocking levels. This has allowed the State to maintain low administrative costs (approximately $50,000 per year) at the expense of equity and accuracy.

Forest tax revenues depend on the tax system used and factors applied in each system. Factors which influence tax revenues in each system are:

1. Standing Inventory Property Tax
   a. Appraised value of the forest land
   b. Property tax rate
   c. Mill levies of local taxing jurisdictions

2. Productivity Property Tax
   a. Appraised value of the forest land
   b. Property tax rate
   c. Mill levies of local taxing jurisdictions

3. Yield Tax
   a. Volume of timber harvested
   b. Value of timber harvested
   c. Yield tax rate on value

4. Severance Tax
   a. Volume of timber harvested
   b. Severance tax rate on volume

HISTORY OF TIMBER TAXATION IN MONTANA

Approximately 14.58 million acres are classified as commercial forest land in Montana.1/ Approximately one fourth of that total or about 3.55 million acres are classified and appraised as private forest land, the rest, 11.03 million acres, is public land. Although, commercial forest lands comprise a significant amount of Montana's land base, this resource represents a very small portion of our state's tax base. In 1986, the taxable value of forest lands was approximately 1/3 of one percent of the state's total tax base.2/ This is down from approximately 1/2 of one percent in 1976.3/

Historically, property tax revenues on forest land have always been relatively unimportant to the state. Prior to 1957, the State Board of Equalization did not bother to establish a standard method of equalization among timber producing counties. With no direction from the State Board, counties developed their own forest appraisal procedures and valuations. Methods and values varied widely from county to county.

The history of our current tax system can be broken into four general timeframes: 1957-1963, 1964-1978, 1979-1986, present time. Significant events which have influenced forest taxation over the past five decades are discussed below.

1957 thru 1963

In 1957, the Legislature passed a law directing the Board to provide for "a general and uniform method of appraising timberlands". Unfortunately, the legislature did not provide funding to implement this law.

Flathead county commissioners finally grew impatient over the lack of a uniform method for appraising timberlands in their county. They hired a forestry consultant in 1958 who developed a forest inventory of private forest land in Flathead County. They then established a property tax based on this information. When the state finally funded the general and uniform forest tax law, Flathead County refused to accept the state system except in remote areas of the county which had not been included in the original inventory.4/ This left Flathead county with two different forest inventory and valuation systems.

In 1959, the legislature appropriated funds to develop a uniform forest appraisal system. The Board then asked the State Forester's Office to develop a timber classification system. County Commissioners were given the option to contract the classification work to the Division of Forestry or do the work themselves. Most western and central counties chose to contract

the work back to the State. A few counties (mostly in eastern Montana) chose to do the work themselves. Initially, some eastern counties were not classified at all.

Under the new classification system, the counties went on the tax rolls piecemeal as they were completed. The first counties went on the tax rolls under the new system in 1963.

1964 thru 1978

The first two valuation schedules were developed by the Division of Forestry under the direction of Robert Griffes in 1963 and 1968. These schedules were reviewed and subsequently approved by the Board of Equalization.

The new timber classification and appraisal system had many critics. The University of Montana School of Forestry was funded $8,000 in 1967 to study the effects of refining Montana's forest property tax.5/

Controversy over the level of forest taxation boiled over into the court system in the late 1960's and early 1970's. In 1970, the Anaconda Company won a decision in District Court against Sanders County. The Sanders County assessor had defied a directive from the State Board of Equalization and assessed a private logging road at a level higher than surrounding forest land.6/ The Anaconda Company had filed a similar suit against Flathead County in 1967.7/

Also in 1970, a Flathead County Commissioner filed a 58.8 million dollar class action suit against the State Board of Equalization. The suit challenged as unconstitutional the present method of assessing timber and timberlands. The suit was an outgrowth of dissatisfaction with assessment methods the board had used for several years.8/

Dissatisfaction with the State Board and the low level of forest taxation finally caused five counties in northwestern Montana to form a Five County Association in 1970.9/ The Association openly rejected the Board's bare land valuations under the timber. The Association argued that timberlands were being underassessed and proceeded to put their own higher assessments on timberlands. A group of affected forest landowners took the Association to court over this issue. In 1971, the State Supreme Court ordered the Association to comply with the State Board of Equalization's assessment rates.10/

In 1971, the Montana Supreme Court took under advisement the two differing methods of forest valuation in Flathead County. The same group of forest landowners who had filed suit against the Five County Association challenged Flathead County's different

methods of assessment.11/ The high court left intact Flathead County's dual inventory and appraisal system.

In 1972, the Board of Equalization, facing harsh criticism that they lacked experience and expertise in forestry related matters, hired their own forester. The Board's forester developed the 1972 valuation schedules and administered the forest property tax. This ended the Division of Forestry's direct involvement in forest property taxation.

The passage of the new Montana state constitution in 1972 created the Property Assessment Division and eliminated the State Board of Equalization. The Montana Department of Revenue, Property Assessment Division is now responsible for the general and uniform appraisal of all real and personal property in the state. The State Board of Equalization, in essence, became the State Tax Appeal Board.

Due in part to the criticism Montana's property tax system was encountering, the yield tax issue was hotly debated in the 1973, 1975 and 1977 legislative sessions. In 1973, a yield tax bill failed by one vote in the Montana senate. During the 1977 legislative session an agreement was reached to allow a yield tax bill to die in committee in favor of a forest taxation study.12/ An interim committee established by the 1977 Montana legislature studied forest taxation and considered alternatives, including a timber yield tax, to replace the states present property tax system. No change was recommended in the committee report, "Timber Taxation in Montana - Interim Study by the Revenue Oversight Committee," November 1978.

New valuation schedules were not developed for the 1978 appraisal cycle. Instead, the Property Assessment Division decided to concentrate staff efforts on classifying and assessing timberland in eastern Montana.

1979 thru 1986

In 1981, the Department of Revenue produced a study estimating that it would cost between 1.3 and 2 million dollars to update the current system. In a cost effective decision, the Department's director instructed the Property Assessment Division to update the valuation schedules, but drop any attempt to systematically review all statewide forest classifications.

The Governor's Council on Management reviewed Montana's forest taxation in 1982 and recommended a study to develop a productivity classification system. In 1983, the Montana Woodland Council, a subcommittee of the Rural Area Development Council, recommended a resolution requesting the Department of Revenue to conduct a study on a forest productivity

classification. The Council adopted this resolution and copies of the resolution were mailed to the Governor's Office, the Revenue Oversight Committee and the Department of Revenue. In August, 1984, the productivity issue was placed on the agenda for a Revenue Oversight hearing. No one appeared at the hearing to testify and no action was taken on the study.

In 1983, new administrative rules were adopted for the 1986 reappraisal cycle. These rules described the methodology which was to be used in the next five year appraisal period (1978-1982).

The 1985 legislature decided that agricultural lands would not be revalued to the new base period (1978-1982). They also instructed the Department to adjust the taxable percentage on timberland to generate the same taxable value per acre in 1986 as was produced in 1985 (15-6-143, MCA). To accomplish this goal, the legislature removed timberland from property tax class three (agricultural and timberland) and created a new property tax class (class 13-timberland). The taxable percentage on timberland went from 30 percent in 1985 to 3.84 percent in 1986.

Section 15-6-143, MCA, also redefined what lands would be included in the timberland property tax class. There are only two requirements. They are:

1. The timberland must be contiguous land exceeding 15 acres in one ownership.

2. The land must be capable of producing timber that can be harvested in commercial quantity.

New administrative rules were adopted for the law after the 1985 legislature adjourned (42.20.113, 42.20.133, 42.20.134, 42.20.135, 42.20.136, 42.20.137, 42.20.138 and 42.20.140, MCA).

Timberlands in two counties were completely reclassified for the 1986 tax year. Flathead County, because it contained two different valuation systems (the cruise inventory versus the timber type classification) and Cascade County because of the inferior work done on the original timber classification during the 1960's. All private timberlands in the state are currently classified and appraised under the same methodology and appraisal procedures.

In 1986, the most current valuations were put in place and will remain in effect until December 31, 1993.

Present Time

The Department is currently in the prccess of converting landowner/valuation data from a personal computer based operation to an interactive statewide computer network. The data base will be stored on a mini-computer located in Helena, which can be immediately accessed by computers located in county offices.

In 1990, the Department will begin the process of compiling new timber valuation data for the next appraisal cycle scheduled to begin January 1, 1993.

Montana's Forest Tax

Montana uses a standing inventory system to tax timber. Under this system, the timber assessed value is based on the relative value of the standing timber. The more valuable the timber, the higher the assessed value. The valuation procedure incorporates forest classifications, access and topography information, volume data, and income and expense figures to produce a present net worth of future benefits for the timber.

The timberland is classified according to the accessibility to the timber, topography, and distance to a manufacturing point. These factors are used to adjust standing timber values for each forest landowner. Volume tables were developed on a county or regional basis to reflect a volume per acre for each forest classification.

Theoretically, as a timber stand matures, its present net worth increases and thus the property tax increases (see Table 6). In actual practice, this does not occur for all landowners in Montana because the timber classification is not kept current.

The standing inventory system is a regressive tax. A large tax will encourage landowners to liquidate high value, merchantable stands.

The Montana Division of Forestry conducted a survey on landowner attitudes towards forest property taxes in the 1970's. They discovered that Montana's low forest tax level has virtually eliminated any complaints landowners might have concerning the tax. The inherent weaknesses in the standing inventory system will always exist. Any dramatic increase in forest taxes under the current system may force landowners to cut their timber.

The bare land under the timber is appraised using grazing values taken from the agricultural schedules developed in 1963. These values range from $0.82 to $2.52 per acre.

Forest Classifications

Montana's general assessment law provides for general and uniform methods of appraising timberlands. The original forest classification system was a uniform and simple method of mapping Montana's private forest lands. It was assumed that these classification maps would be maintained and kept current.4/ The original base maps are now more than 25 years old and are the basis for most forest landowner's property tax.

Forest stands are mapped from aerial photographs according to three stand characteristics: species, tree size and stocking level. The maximum number of forest classifications can vary considerably from county to county. In southeastern Montana, counties may have up to 10 different forest classifications. In western Montana, each county may have over 100 different forest classifications.

Unfortunately, the date of classification depends on which landowner you are looking at. Mapping was conducted on the most current aerial photography available at the time. Some of the original work in eastern Montana was done off photography dating back to the 1940's. In 1985, Flathead and Cascade counties were reclassified from 1970 and 1971 aerials.

Originally, the system was developed and turned over to county assessors. Most assessors had no forestry background. Their lack of training led to classification and appraisal errors. Even with formal training, classification and appraisal work is time consuming and difficult. The Property Assessment Division instituted a timber certification program for their appraisal staff in 1979. Due to staff cutbacks and changing priorities, timber appraisal certification has been suspended. Currently, classification and appraisal work are handled by two staff foresters. Landowners who contact the appraisal offices concerning timber depletions (fire or logging) will usually receive an on-site inspection of their property. Their new appraisals will reflect an up-to-date forest classification.

Champion Timberlands Inc. has maintained current classifications on most of their ownerships. Champion will report their annual cuttings and generally update the stands in the vicinity of the actual harvest. They are willing to accept the associated administrative costs because it is to their advantage to do so. The forest property tax is based on standing inventories and a reduction in inventory will mean a reduction in property tax. The Department of Revenue does not have the staff to reclassify thousands of harvested acres on industry land each year.

In 1989, Plum Creek Timber Company attempted to account for logging depletions which occurred during the 1980's. During that period, Plum Creek had not turned in logging depletions to the Property Assessment Division. Company personnel have indicated that they will continue to turn in to the Department, annual harvest depletions.

In order to reduce a forest land tax bill, a forest landowner must remove more timber than was present when the original classification was mapped. When forest landowners fail to contact our appraisal staff after fires or logging operations, their tax bill may reflect timber values no longer existing on

their property.

Average Stand Volume Tables

Average stand volume tables are tables which reflect an average board foot or cubic foot volume per acre for each forest classification in each county. These tables were developed in the early 1960's by the Division of Forestry and a committee composed mainly of individuals from forest industry. The inventory data for these tables came from many different sources using different inventory standards. This information was arithmetically averaged together to produce preliminary drafts. These drafts of the average stand volume tables were then subjectively adjusted based on judgment and experience of the committee members. Not only is the statistical reliability questionable, but these tables were based on average stand conditions which existed in the 1950's.

Prior to 1972, the size class standards were poletimber 5" diameter at breast height (d.b.h.) to 10.9" d.b.h. and sawtimber 11.0" + d.b.h. Increased efficiency and better technology have continually pushed merchantability standards down. In 1972, these size classes were adjusted to reflect: poletimber 5.0" d.b.h. to 8.9" d.b.h., sawtimber 9.0" + d.b.h. The department collected inventory data on volumes in the 9" to 11" d.b.h. class. The sample was statistically weak but data from this sample was used to adjust average volumes to reflect new size class standards.

Land Valuation Under the Timber

Currently, a grazing value derived from our 1963 agricultural schedules represents the land value under the timber. These values range from $0.82 to $2.52 per acre.

Nonforest grazing lands are taxed at 30 percent of their assessed value. Timberlands are taxed at 3.84 percent of the assessed value.

Cost to Administer Forest Tax

The cost to update the current standing inventory system would have to include the systematic review of all forest classifications, average stand volume tables, and the valuation data.

The cost to update the average stand volume tables would be very

high. Inventory plots would have to be sampled for each forest classification in each volume table. Adequate sampling would have to be conducted. There are currently 25 volume tables. Some tables contain over 100 forest classifications. The U.S. Forest Service has inventory data that would be helpful in updating volume tables on private forest lands in Montana. Access to this information has been denied to the Montana Department of Revenue by the U.S.F.S.

If the state was to adequately maintain an updated stand inventory system, funding would have to be increased to systematically purchase new aerial photography and randomly field inspect the 3.55 million acres of private forest lands on a continuous basis.

The current ongoing administrative cost for Montana's forest tax is approximately $50,000. This figure also includes clerical work to maintain day-to-day realty transfers of forest properties throughout the state.

Forest Tax Revenue

Although the forest products industry is a major component in western Montana's economy, private forest lands constitute a minor portion of our property tax base. Lincoln County, with approximately 413,500 acres of privately owned timber and little commercial or industrial development, is the exception to this case. In 1988, Lincoln County timberlands comprised 8.1 percent of the taxable base for real property.13/

In 1963, the forest taxable value per acre on 917,795 acres in western Montana was $2.40.14/ In 1986, the forest land taxable value per acre on 2,359,920 acres in western Montana was $2.53.15/ Statewide, the forest land taxable value in 1986 was $1.88 per acre.16/ The increase in taxable value per acre in western Montana from 1963 to 1986 was .13¢ per acre (nominal dollars). In real dollars, this represents a 89 percent decrease in value during this 23 year period.

There are four principle reasons for this real decrease in taxable value. 1) The Department of Revenue did not reappraise timberlands for the 1978 appraisal cycle, 2) the 1985 Legislature mandated that there would be no statewide increase in taxable value as a result of the 1986 reappraisal, thus the statewide taxable value was adjusted back to the 1985 level, 3) forest growth has not been updated for all forest landowners, 4) high value, old growth timber inventories have been largely removed in the past decade on the Forest Industry's lands.

The forest property tax can vary from $.009 to $8.39 per acre

(using 300 mills). The average forest tax in western Montana is approximately $0.73/acre and in eastern Montana is approximately $0.15/acre. The statewide average forest tax is approximately $0.56 per acre (using 300 mills).

Approximately 3.55 million acres are appraised as commercial, privately owned, forest land in Montana. In 1988, private commercial forest land was appraised at $168,975,255. This appraised value generated $6,488,624 in taxable value.16/ Forest lands are estimated to produce between 1.9 and 2.0 million dollars in property tax revenue each year. About 64 percent of the total forest property tax is generated in Lincoln, Flathead and Missoula counties.15/ While there are around 10,500 forest ownerships in the state, two corporate landowners pay more than 60 percent of the forest tax (Champion Timberlands Inc. and Plum Creek Timberlands, Limited Partnership).

Summary

Montana uses a standing inventory system to tax timber. The premise behind this tax is: the more valuable the standing timber, the higher the annual property tax. Theoretically, as the forest stand matures, its present net worth increases and thus the property tax increases. The dynamic nature of change in any forest environment makes it very difficult and expensive to maintain current inventories on standing timber.

Many forest landowners have never had their standing timber inventories reviewed and updated. Some landowners are paying property taxes on inventories which existed in the 1940's and 1950's.

This forest tax system has often been billed as an "at value" tax on the forest productivity. This has never been the case. The tax on timber has always been based on standing inventories, not site productivity.

The land under the timber is valued as grazing land. The land values are derived from the agricultural schedules used in property tax class 3.

The forest property tax generates approximately 2 million dollars per year on 3.55 million acres of private forest lands. The annual administrative cost for this tax without maintaining current information on the timber stand is approximately $50,000 per year.

Productivity Tax System

A productivity tax system creates an annual property tax based on the principle that the more productive the land, the higher the property tax. The productivity formula produces a site value with forestry and agriculture as the highest and best use.

An income capitalization formula is used to determine the appraised value. The productivity formula can be defined in general terms as Value equals Income divided by the Rate of Capitalization (V = I/R). If this equation is applied properly to a forest income stream, a market value of bare land or land and timber combined can be calculated. Land speculation, recreation, and other amenities are ignored, thus the value represents forestry as the highest and best use.

The productivity system produces a value based on site quality and ignores the timber stocking level. The concept behind this approach assumes equal annual income is received from the forest in perpetuity. In reality, forest income is periodic and not received in equal amounts unless the forest is fully regulated, all-ages, and maintains a sustained yield.

Productivity System in Montana

The productivity approach can value the land only, or the land and timber together, based on the earning capacity of a forest site to produce timber. The historic application of agricultural grazing schedules to represent the land value under the timber would be eliminated. A grazing income figure would be included in the capitalization formula. The productivity formula allows easy capitalization of net grazing income. It is important to recognize the grazing component on forest lands. In eastern Montana, timber revenue is often a minor income source. Grazing is the major operation on many of these lands. To ignore the grazing income stream would result in the undervaluation of forest land in many counties.

Differences in site productivity can be measured by site index, but most Montana forest stands contain many timber species. A better comparison can be made by estimating the site's net yield capability. This can be done by using natural-stand yield tables. Potential yield capability can be defined as the maximum mean annual increment attainable in fully stocked stands.

The most common method of estimating potential productivity is through the measurement of "site" trees. These trees should be relatively free from the effects of suppression, insects, disease, etc. Good site trees are difficult to find on many forest sites. Procedures to estimate site productivity where no

adequate site trees are available would have to be established and agreed upon.

Forest survey places timberland in six productivity classes. The classes reflect potential cubic volume production per acre per year. They are 0-19, 20-49, 50-84, 85-119, 120-164, 165+ (cubic feet/acre/year). Site index on a given site can be measured by determining the age (age at breast height or total age) and height of dominant and codominant trees in the stand. This information can be applied to a yield table for the species measured to indicate yield capability in cubic foot production. Site index tables that use age at breast height and a 50 year base age should be used when possible.

Rarely will two species on the same site process the same yield capability. A given site index for one species is not directly comparable to the identical site index for another species. There is no single species which is adapted to or found on all forest sites in Montana. It would therefore be unreasonable to use a single species as a standard to base statewide productivity. The species best suited to a site should be the index for that site. This may produce an estimate above the actual yield of that site. Many foresters advocate that site indexes should be weighted by the species composition found in the stand. This is not possible in a statewide mass appraisal which must compromise between time, cost and accuracy. To compensate, yield capability should be reduced to at least 75 percent of normal stocking. This would also help account for dry sites which have difficulty reaching a fully stocked situation and other factors which restrict a particular site from reaching it's full potential yield.

Less than one half of one percent of Montana's commercial forest land falls in the 165+ cubic feet/acre/year class.17/ 42.20.113(b)(i), Administrative Rules of Montana, state that timberlands must produce in excess of 20 cubic feet per acre per year to qualify as commercial forest land. For all practical purposes, this leaves four productivity classes in Montana. They are: class IV 20-49, class III 50-84, class II 85-119, class I 120+ (cubic feet/acre/year). The ponderosa pine region in southeastern Montana falls almost exclusively into site class IV (20-40 cu.ft/ac/yr). This region covers approximately 11 counties. Classification work would amount to delineation of commercial forest lands over 20 cu.ft/ac/yr. Only the best sites on north-facing slopes and perhaps some east-facing slopes would fall in site class III (50-84 cu. ft/ac/yr).

Lincoln, Flathead, Sanders and Lake counties contain most of Montana's best growing sites. In these four counties, less than ten percent of the commercial area falls in site class I (120+ cu. ft/ac/yr).17/ Almost 80 percent of the sites fall in class II and class III. This area contains the most site diversity

found in Montana. This region also lacks comprehensive soil survey maps and corresponding productivity measurements. On forest lands which have not had their soils classified and mapped, productivity will have to be determined through the combination of on-site field measurements, habitat type maps, precipitation maps and topological data.

Forest industry owns 63 percent of the private forest lands in this region.15/ Industry cooperation on their productivity data would fill a large information gap the department currently encounters. When Idaho developed their productivity classification, forest industry assisted in the classification of their own lands.

The following is an area breakdown (in percent) for all private forest lands in Montana based on state and private inventory data.18/

Site I	-	Excellent	-	3%
Site II	-	Good	-	13%
Site III	-	Average	-	40%
Site IV	-	Poor	-	44%

Approximately 84 percent of our private forest lands will fall in site III and site IV productivity classes. On most forest sites, the classification issue will involve one of two productivity classes.

The state could be divided into six productivity regions (see pg. 17.) The average cubic volume per acre per year for class IV (poor) in Missoula County is higher than the average cubic volume per acre per year for class IV in Carter County. Average production per year for each site class could be adjusted for each productivity region. Average rotation age would also be defined for each region.

Forest valuation data could be divided into four to six regions. The current access and topography classification that is used with the standing inventory system could possibly be adapted to influence stumpage prices for each forest ownership. The same regions could be used to determine other agricultural related income (i.e.; grazing income).

Productivity Classification Procedures - Base maps would be constructed to a scale of four inches to the mile. Orthophotographs would be used to map productivity units. These orthophotos will have land lines and contour lines superimposed on them by the U.S. Geological Service. Aerial photographs will be used to delineate forest/nonforest boundaries. Public/private ownerships will be mapped. Miscellaneous small public ownerships will be classified to avoid review in the future if

these parcels are traded or sold to private owners. Productivity boundaries and section lines will be drawn on a mylar overlay. Random field work will be conducted to cross-check and correlate office work. In areas lacking habitat type or soil survey maps, the classifier would have to rely on aerial photographs, precipitation maps, topographical factors (elevation, slope, aspect) and increased field work to validate office mapping.

Area by productivity classes will be compiled for each ownership in the same manner that we currently list forest classifications. Access and topography grades would be indicated for each owner. Assessments would be made on a sectional basis. All landowner valuation records would be computerized.

Region 1

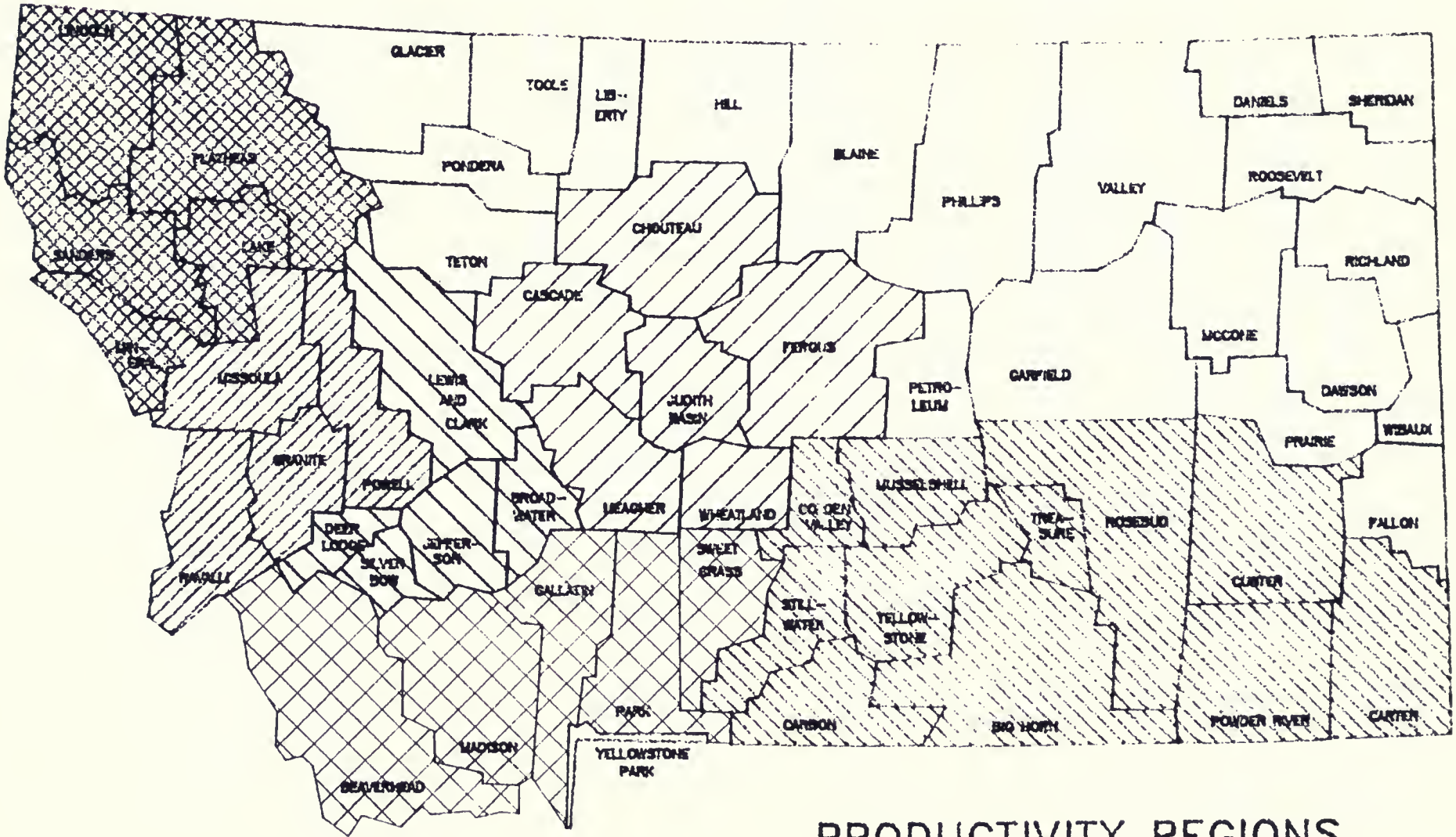
Region 2

Region 3

Region 4

Region 5

Region 6



PRODUCTIVITY REGIONS

Table 1

CALCULATION OF APPRAISED VALUE

$$\text{Appraised Value} = \frac{\text{MAI} * \text{S.V.} + \text{Other Ag. Related Income} - \text{Costs}}{\text{Capitalization Rate}}$$

M.A.I. = Mean Annual Increment
S.V. = Stumpage Value
Ag. Income = Other Agricultural Related Income
Cost = Annual Forest Cost/Acre

Valuation Example for Western Montana

Assume:

M.A.I. = 52 cu.ft/ac/yr* (approximately 208 bf/ac/yr)**
Rotation Age = 90 years
Stumpage Value = $280/M.C.F.
Other Agricultural related income = $2.23/ac.
Costs = $5.00/ac.
Capitalization rate = 10%
Gross timber income = 52 cu.ft/ac/yr X 90 years X $280.00/M.C.F. = $1,310/ac.

$$\text{Annual gross timber income} = \frac{\$1,310/\text{ac}}{90 \text{ years}} = \$14.56/\text{ac/yr}$$

$$\text{Appraised value} = \frac{\$14.56 + \$2.23 - \$5.00}{.10}$$

$$= \$117.90/\text{acre}$$

---

* M.A.I. (70 c.f./ac./yr.) X .75 = 52 c.f./ac./yr. (see pages 14 and 15, for reference on 75 percent factor)

** Based on a 11.0 to 12.9 average d.b.h., 4.0 b.f. to 1 c.f. ratio and Scribner Log Rule

Table 2

VALUATION EXAMPLE FOR CENTRAL MONTANA

$$\text{Appraised Value} = \frac{\text{MAI} * \text{S.V.} + \text{Other Ag. Related Income} - \text{Costs}}{\text{Capitalization Rate}}$$

M.A.I. = Mean Annual Increment
S.V. = Stumpage Value
Ag. Income = Other Agricultural Related Income
Cost = Annual Forest Cost/Acre

Assume:

M.A.I. = 38 cu.ft/ac/yr* (approximately 148 bf/ac/yr)**
Rotation Age = 110 years
Stumpage Value = $175/M.C.F.
Other Agricultural related income = $3.50/ac.
Costs = $2.00/ac.
Capitalization rate = 10%
Gross timber income = 38 cu.ft/ac/yr X 110 years X $175.00/M.C.F. = $732/ac.

$$\text{Annual gross timber income} = \frac{\$732/\text{ac}}{110 \text{ years}} = \$6.65/\text{ac/yr}$$

$$\text{Appraised value} = \frac{\$6.65 + \$3.50 - \$2.00}{.10}$$

$$= \$81.50/\text{acre}$$

---

* M.A.I. (50 c.f./ac./yr.) X .75 = 38 c.f./ac./yr. (see pages 14 and 15 for reference to the 75 percent factor)

** Based on a 11.0" to 12.9" average d.b.h., 3.9 c.f. to b.f. ratio and Scribner Log Rule

Cost to Administer Productivity Tax

The complexity and thus the cost to implement and administer a productivity tax can vary widely. The state and the forest industry can choose to generalize the productivity classes and their relative values or they can choose to use a very detailed approach to ensure the most obtainable accuracy.

A generalized approach would contain few productivity classes. When the number of productivity classes increases, each productivity range narrows. Thus, the classifications and appraisals becomes more specific. As the number of productivity classes increases, so does the difficulty and cost to measure and map these classes. The margin for error will increase as the classification becomes more specific. The trade-offs between a generalized versus a more detail classification system must be carefully weighed.

The most cost-effective and consistent method of classifying productivity is through the use of Soil Conservation Service soil maps. Forest productivity has been measured for each soil type in areas where the soil classification is complete. Some commercial forest lands in Northwestern and Central Montana have not had their soils classified and mapped. The S.C.S. does not expect the entire state to be mapped until the year 2000.

The ongoing administrative cost is less than either the standing inventory or yield tax system.

Forest Tax Revenues

The overall tax burden carried by forest landowners under a productivity tax is largely influenced by the property tax rate. Property tax rates are controlled by the state legislature. Additionally, the tax burden incurred on each forest owner is influenced by the appraised value placed on the land and timber and the mill levies imposed by the local taxing jurisdictions.

It is difficult to estimate to the total appraised value private forest lands would generate under this system. Forest land productivity has not been classified and mapped throughout the state. Valuation guidelines and procedures have not been developed. The Legislature would determine the total taxable value and a new property tax rate once a reappraisal was completed using this system.

Summary

The productivity system values the productivity of a site. This system would produce a site value with forestry and agriculture as the highest and best use.

The productivity classification system would ignore species composition and the actual stocking level of the site. Therefore, forest inventories would not be monitored for changes in stocking levels.

The productivity tax assumes equal annual income is received from the forest in perpetuity (see Table 6).

The startup cost for this system is perhaps its biggest drawback. Once the system is in place and functional, its ongoing administrative costs are less than the standing inventory or yield tax systems.

Yield Tax

A yield tax is an excise tax imposed on the stumpage value of harvested timber. The basic principle behind the yield tax is simple; all taxes paid on the standing timber are delayed until the time of harvest (see table 6). An annual tax is paid on the bare land under the timber. Landowners or the timber harvesters are taxed on a percentage of the income they receive from their harvested timber. This tax is somewhat analogous to Montana's proceeds taxes. The yield tax is an alternative to the property tax on standing timber.

Cost to Administer Yield Tax

The cost to administer a yield tax is divided into two main categories -- public land and private land.

The timber harvester is the operator who fells and/or removes the timber for sale or use. The timber harvester may or may not be the owner of the timber after it is cut. The harvester would complete a harvest report listing volume of products removed by species and grade. The volumes would be applied to stumpage value tables and the total value would be multiplied by the yield rate to arrive at the yield tax owed.

The stumpage value tables would be prepared by the Department of Revenue after examining sale values of similar standing timber. The value tables must account for differences in size, quality, defects, cost of removal and market conditions. These values involve consideration of different areas, species and logging conditions.

The yield tax is a tax on the timber only. The land under the timber is usually valued under the property tax system. This has turned out to be difficult to accomplish in Washington and Oregon. In these states the courts and their legislatures have created statutory land values and procedures to annually update those values.19/

Perhaps the most controversial yield tax issue in other states has been the tax rate itself. Forest taxpayers fear a high rate, yet local taxing units must be funded at an adequate level. Often, legislatures will arbitrarily set the rate to generate approximately the same revenues as the old law.

The administrative complexity has increased in Washington, Oregon and California as these states have become more sophisticated in the application of the yield tax. It is quite possible that this complexity is greater than their state legislatures had originally anticipated.

Cost to Administer Yield Tax on Public Lands - The yield tax on public lands is easy and inexpensive to administer. No valuation tables are needed because stumpage prices are established through the open bidding process and no forest industry "fee" lands are involved. The yield tax rate is applied directly to the sale price. The yield tax is based on harvested value* not harvested volume.

In Washington State and California, public timber generates approximately one third to one half of the yield tax revenues. Their total administrative costs are currently around 2 percent.20/ Oregon does not have a yield tax on public timber and their total administrative costs are much higher. The level of administrative costs depend in part on the amount of timber harvested, value of timber harvested and the yield tax rate.

Cost to Administer Yield Tax on Private Lands - While the yield tax concept is simple, the administration of this tax is usually complex on private forest lands. The law must adequately cover: personal use, minimum amounts, what products apply, will timber from public lands be taxed, who will pay the tax -the landowner or the timber harvester, rollback provisions, revenue distribution, revenue pooling, phase-in period, forestry regulation if any, and the effect the tax will have on the taxable value of local government taxing jurisdictions, (i.e., bonded indebtedness, mill levies, class of county determinations, etc.).

Yield Tax Revenue

The revenue from a yield tax is discussed in two parts -- public lands and private lands.

Revenue From Yield Tax on Public Lands - The federal government provides two forms of payments to states to help replace tax revenues lost from federal lands. These are:

a. 25 percent payment of national forest receipts from timber, grazing and recreation.

b. Payments in Lieu of Taxes (PILT).

* Washington and California use the gross value of harvested timber which includes road and other administrative costs.

In federal fiscal year 1988 (October 1, 1987 - September 30, 1988), Montana received $8,238,544 in 25 percent national forest receipt payments. Montana received an additional $8,175,007 in PILT payments.

When Washington State passed a yield tax law on public lands in 1982, the state was facing a large state budget deficit. U.S. Forest Service officials took a "hands off" position and offered little if any comment at public hearings.19/

The taxation of public timber in Oregon, Washington and California has not affected the PILT payments and 25 percent National Forest Receipts these states receive from the federal government.

State Lands, the U.S. Forest Service, and the U.S. Bureau of Land Management provided actual timber revenues for fiscal year 1988. Table 3 shows the estimated tax revenues that would have been generated in fiscal year 1988 for public forest lands at various yield tax rates. In Federal Fiscal Year 1988 (October 1, 1987 through September 30, 1988), U.S. Forest Service and U.S. Bureau of Land Management timber sales harvested 545,616 MBF (thousand board feet) and received $25,260,591 in harvest receipts. In State Fiscal Year 1988 (July 1, 1987 through June 30, 1988), state timber sales harvested 55,800 MBF and received $3,735,546 in harvest receipts.

Table 3

ESTIMATED YIELD TAX REVENUES IN FISCAL YEAR 1988
FEDERAL AND STATE SALES

FEDERAL TIMBER SALES
(OCTOBER 1, 1987 TO SEPTEMBER 30, 1988)

Rate (%)	Revenue ($)*
3.0	757,818
4.0	1,010,424
5.0	1,263,030
6.0	1,515,635
7.0	1,768,241
8.0	2,020,847

STATE TIMBER SALES
(JULY 1, 1987 TO JUNE 30, 1988)

Rate (%)	Revenue ($)*
3.0	112,066
4.0	149,422
5.0	186,777
6.0	224,133
7.0	261,488
8.0	298,843

* Does not include road costs for timber sales or sales from Christmas trees.

Revenue From Yield Tax on Private Lands - Forest tax revenues depend on the yield tax rate, the value each timber owner receives for the timber and the volume of timber harvested. The yield tax rate is controlled by the state legislature.

Many assumptions were made to predict yield tax revenues on private forest lands. There is no current information on species composition harvested from private lands on a county or regional basis. Species mix and stumpage values will vary from county to county.

The average stumpage values and species mix were compiled through informal discussions, in November 1989, with wood product mills throughout the state. These estimates are very broad and are not based on any statistical study.

Harvest volumes on private forest lands were obtained from 1988 slash disposal reports compiled by State Lands, Division of Forestry. Based on the information compiled, 27 counties would have received at least $1,000 in 1989, from private forest lands, using a three percent tax rate. Table 4 shows the estimated revenues that would have been generated in calendar year 1988 for private forest lands at various yield tax rates.

Table 4 is provided only as an approximate indication of the tax revenues which might have been generated from private timber sales in 1988. Table three is provided only as an approximate indication of the tax revenues which might have been generated from state and federal timber sales in 1988. The lack of statistical information to track income received by owners of private timber creates a large margin for error on the estimate of yield tax revenues from private timberlands. Volatility in the wood products market will cause the figures in Table 3 and Table 4 to change each year.

Table 4

ESTIMATED YIELD TAX REVENUES IN CALENDAR YEAR 1988
FOR PRIVATE FOREST LANDS
(JANUARY 1, 1988 TO DECEMBER 31, 1988)

Rate (%)	Revenue ($)
3.0	1,271,377
4.0	1,695,170
5.0	2,118,962
6.0	2,542,754
7.0	2,966,547
8.0	3,390,339

Summary

Idaho, Washington, Oregon and California have a yield tax. The yield tax is somewhat analogous to Montana's net proceeds taxes. Timber owners are taxed on a percentage of the income they receive from their harvested timber. Yield tax rates vary from 2.9 to 6.5 percent in neighboring states.

Many states with a yield tax also apply an annual property tax to the land under the timber. Average land taxes under the timber in neighboring states last year ranged from $0.68/acre to $0.79/acre.

Revenues generated from a yield tax depend upon three factors: the yield tax rate, the timber volume harvested and the value the timber owner receives for their timber. Two states (Washington and California) apply their yield tax on public lands. Public timber sales generate 1/3 to 1/2 of the total tax revenues in both Washington and California.

Severance Tax

The severance tax is typically a fixed rate per unit of volume harvested. Units of measure may be board feet, cubic feet, cords, post and poles, cubits, etc. Severance taxes are relatively minor taxes attached to a yield tax and/or annual property tax. The tax is paid at the time of harvest when the landowner or harvester receives the income.

The severance tax is simple and inexpensive to administer. The Department of Revenue would not produce stumpage valuation tables since this is a tax on volume harvested, not value received by the timber owner.

Unfortunately, the severance tax is not generally considered to be an equitable revenue source. The tax tends to be regressive for timber owners with lower value timber or those with higher logging costs. Since it is driven by volume not by value, the severance tax burden increases during recessions when timber prices fall.

For example, a landowner may harvest yellow pine worth $120 per thousand board feet. An adjacent landowner may harvest bull pine worth $50 per thousand board feet. A one dollar per thousand board feet severance tax would mean the owner of the yellow pine would pay 0.8 percent of his harvest income in severance taxes. The owner of the bull pine would pay two percent of his income in severance taxes or two and a half times as much as the owner of the yellow pine. For this reason, states with a severance tax relegate this revenue source to minor tax status.

Oregon is the only state in the Northwest which employs this tax (Oregon refers to this tax as a harvest tax). It is applied to both private and public forest lands.

Cost to Administer Severance Tax

Landowners who harvest timber on their property must notify the Montana Division of Forestry, Department of State Lands. The Division of Forestry administers a Slash Disposal Program which monitors all logging activities on private forest lands.

The most cost efficient approach to administer a severance tax would be to add this tax to the slash disposal fee each harvester must deposit with the Division of Forestry.

Severance Tax Revenues

Severance tax revenues would depend on the severance rate per unit of volume harvested ($ per thousand board feet, $ per hundred cubic feet, $ per cord, $ per bale of Christmas trees, etc.), and the volume harvested.

Based on the 1988 slash disposal report prepared by the Montana Division of Forestry, private forest lands harvested 608,500 MBF (thousand board feet). A $0.25/MBF severance tax would have generated $152,125 in tax revenues in 1988.

In Federal Fiscal Year 1988, 545,616 MBF were harvested on U.S. Forest Service and U.S. Bureau of Land Management lands. A $0.25/MBF severance tax would have generated $136,404 in tax revenues.

In calendar year 1988, 41,526.59 MBF were harvested on state lands. During this time period, a $0.25/MBF severance tax would have produced $10,382 in tax revenues.

Summary

The severance tax is based on timber volume harvested, not timber value. This tax is simple and inexpensive to administer on either public or private timberlands. Severance taxes are usually deposited in the states general fund.

States using this tax often allocate the tax revenues to forestry research or forest improvement projects.

COMPARISON OF MONTANA'S STANDING FOREST INVENTORY TAX TO OTHER FOREST IN THE NORTHWEST

A question often asked is "How does Montana's forest tax compare to the level of forest taxation in other northwestern states?" "Is the level of forest property taxation fair and equitable?" "Is the tax an excessive burden on forest investments, neutral, or unduly biased in favor of forestry interests?"

Comparisons with other states must be analyzed very carefully. Differing tax structures, timber species, land productivity, timber values and markets combine to make each state unique.

Some states appraise the land under the timber at fair market value for nonstocked forest lands. Some states appraise the land under the timber at a value which represents forestry as the highest and best use. All states in the Northwest (except Montana) use a land value which varies with productivity classes as shown in Table 5. Because Montana has never classified and mapped productivity on private forest lands, we can not value bare land under the timber in the same manner that other northwestern states do.

Table 5
Bare Land Values
(Under Timber)

State	Assessed High	Assessed Low	Average	Tax Average/Acre
Montana	$ 2.52	$ .82	$ 1.00	.01
Idaho	101.00	22.00	62.00	.71
Washington	126.00	10.00	78.00 (Western) 22.00 (Eastern)	.79
Oregon	210.00	11.00	120.00 (Western) 25.00 (Eastern)	*
California	150.00	19.00	66.00	.68

Source: The above figures were obtained from forest tax supervisors in Montana, Idaho, Oregon, Washington and California.

* The Oregon Department of Revenue does not compile this figure.

Since 1970, nine states have adopted a productivity tax.21/ Idaho is the only northwestern state to impose a productivity tax on the land and timber. In Idaho, the productivity tax is optional to a yield tax for landowners with less than 2,000 acres.

Sixteen states have yield tax statutes.22/ Seven states have adopted yield tax laws since 1970.21/ Eight yield tax states set minimum requirements with forestry as the highest and best use. In four states, landowners must sign contracts specifying that certain forest management practices will be followed. These contracts range from 5 to 50 years and outline the terms of land and timber taxation. Three states penalize landowners if timber is not harvested when it reaches a given size.22/ In one state, Wisconsin, the yield tax is optional to an ad valorem tax (market value), but landowners who agree to this tax must also allow free access to their land for hunting.

In Idaho, the yield tax is paid by the landowner of record. In Washington, Oregon and California the harvester is liable for the tax. A yield tax attached to the annual property tax bill is less complicated and expensive to administer than a yield tax owed by the harvester. Yield tax states have a difficult time tracking down delinquent harvest taxpayers. Washington, Oregon and California have compliance officers to track down delinquent accounts. The Washington State legislature has authorized the use of collection agencies to force payment from delinquent taxpayers.

Three of the five states in the Northwest tax timber harvested from public lands (Montana and Idaho are the exceptions -- see Table 7).

Ten states have mandatory severance taxes.11/ Four states use a modified severance tax which is a percentage of harvesters stumpage value. Most states exempt timber used for personal use from a severance tax. This tax is usually earmarked for state forestry programs or research, but several states deposit all or some revenues into their general fund.

Washington State

Washington State uses a yield tax in lieu of an annual property tax on timber harvested from private and public timber. The yield tax rate is 5.0 percent. An annual property tax is levied on the bare land under the timber. The yield tax has faced bitter political and legal battles in Washington. The following is a quote from Dr. John Conklin, Forest Tax Supervisor and Deputy Director for the Washington State Department of Revenue: "Whenever the timber tax becomes an issue in the state legislature, it disrupts the legislative process to the point of paralysis no matter what else is on the agenda. The timber tax wars have focused on three main issues: land valuation, the yield tax rate and revenue distribution."19/

The methodology to appraise bare land under the timber is similar to Oregon, California and Idaho. Initially, land values were set for each productivity class. A five-year rolling average of stumpage values is used to adjust land values for each productivity class each year. Only 50 percent of any increase or decrease in the rolling five-year average is used to update these values.

In 1988, bare land values ranged from $10 to $126 per acre. The average land value was $22 per acre in Eastern Washington and $78 per acre in Western Washington (see Table 5).

Administrative Costs

The cost to administer the yield tax on timber harvested from private and public lands was 1.7 million dollars in 1988 (see Table 8). The Washington Department of Revenue employs between 25 and 30 people in their forest tax section.

Revenues

The Washington State Department of Revenue administers the program and collects the revenues. Eighty percent of the yield tax revenues received from timber harvested on private land is redistributed to the counties. Twenty percent of the yield tax revenues are retained by the state to cover administrative costs and fund state government. All of the yield tax revenues received from timber harvested from public land is retained by the state. Washington State has approximately 6.8 million acres of private forest land.

In 1988, Washington collected 34.2 million dollars from timber harvested on private land and 17.9 million dollars on public land. Total tax revenues collected from the yield tax were 52.1 million dollars. Accounts receivable amounted to another 5.4 million dollars.

5.4 million dollars in annual property taxes were collected from the bare land under the timber for private timberland ($0.79/ac.). Total yield and property tax revenues were $57,500,000 (see Table 8).

Idaho

In the early 1980's, the Idaho legislature passed a new law changing that state's method of taxing private forest land. Idaho, like Montana, had a forest tax on a standing timber. The forest industry in Idaho actively pushed for and achieved forest tax reforms. The new law contains unique provisions which are not found in other states in the Northwest. Forest landowners with less than 2,000 acres are allowed to choose between a yield or a productivity tax for their property.

Provisions

Large forest landowners with more than 2,000 acres must be enrolled in the productivity tax. Landowners with less than 2,000 acres can choose between the yield tax or productivity tax.

Once a certain tax option is chosen, the landowner is required to remain with that tax for 10 years. If a landowner changes the use of his land, a penalty tax is assessed.

After 10 years, a landowner can change their forest tax from yield to productivity or from productivity to yield. There is a roll-back tax if the landowner goes from a yield tax to a productivity tax. There is no roll-back tax on land going from a productivity tax to a yield tax.

Idaho is not without its equity problems. Their productivity classes are very broad and the quality of the work done on the original productivity classification is questionable. A recent analysis by Rod Brevig, Forest Lands Appraiser for the Idaho State Tax Commission, concluded that Idaho's yield tax (currently 3%) would have to be seven to eight percent to be equitable with their productivity tax.

Productivity Tax

Idaho's productivity tax is an annual property tax on both the land and timber combined. The state is divided into productivity zones. Within each zone, forest land is classified into one of three productivity classes: high, average and low. The productivity formula is identical to the formula used in Table 1.

In 1988, the highest productivity value was $185 per acre and the lowest value was $33 per acre. The average value was $129 per acre.

Yield Tax

Idaho's yield tax uses a yield tax in lieu of an annual property tax on timber harvested from private land. This option is only available to landowners with less than 2,000 acres. An annual property tax is levied on the bare land under the timber.

The yield tax rate in Idaho is 3 percent. Unlike Washington, Oregon and California, Idaho assesses the yield tax to the property owner, not the timber harvester. This has avoided many compliance problems and reduced the state's administrative problems.

The methodology to appraise bare land under timber (yield tax option only) is similar to Washington, Oregon and California.* In 1988, the highest bare land value under the timber was $101 per acre and the lowest value was $22 per acre. The average value was $62 per acre (see Table 5).

Administrative Costs

The Idaho State Tax Commission employs one Forest Appraiser to develop valuation schedules for both the yield and productivity tax systems. This individual provides technical support to the counties. The actual assessment of these valuation schedules is handled at the county level.

The productivity tax and the yield/bare land tax are assessed to the landowner. All three taxes are included in the landowner's annual property tax bill.

Idaho doesn't have audit and compliance functions related to the yield tax. The administrative cost attributable to the Idaho State Tax Commission in 1988 was $68,900 (see Table 8). Administrative costs were not available for the county level.

Over 50 percent of the total administrative cost is attributed to the yield tax, even though the yield tax only generates 10 percent of the revenue.

* For an explanation of the methodology used to appraise bare land, see the discussion on land valuation in Washington State, page 32.

Revenues

Idaho has approximately 2,275,000 acres of private forest land. In 1988, the productivity tax on land and timber combined produced $3,709,000 ($2.00/ac). The yield tax produced $133,000 ($.32/ac) and the bare land tax under the timber (yield tax option only) produced $290,000 ($.71/ac). Total tax revenues were $4,132,000 ($1.82/ac -- see Table 8).

Eighty-two percent of the land (1,865,500 acres) is enrolled in the productivity system. 90 percent of the total revenues are generated from the productivity tax. Only 18 percent of the land (409,000 acres) and 10 percent of the revenues are generated from land enrolled in the yield tax. The yield tax has ranged from $76,000 to 156,000 per year.

Oregon

Oregon uses a yield tax in lieu of an annual property tax on timber harvested from private forest lands. The yield tax rate is 6.5 percent. An annual property tax is levied on the bare land under the timber.

A severance tax is added to all timber harvested on private and public land. On July 1, 1989, the severance tax was increased to $0.67 per thousand board feet (M.B.F.) on harvested timber.

Terminology can be confusing when discussing forest taxation in Oregon. Oregon refers to their yield tax as a severance tax and their severance tax as a harvest tax.

The methodology to appraise bare land under the timber on private forest land in Eastern Oregon is similar to Washington, California and Idaho.* In Western Oregon, bare land under the timber is appraised at its true cash value with forestry as the highest and best use, rather than a fair market value.

In 1988, the highest bare land value under the timber was $210 per acre and the lowest value was $11 per acre for Western Oregon. The average bare land value was estimated to be approximately $120 per acre. The bare land value under the timber in Eastern Oregon was $25 per acre (see Table 5).

Administrative Costs

The cost to administer the yield tax on private lands and the severance tax on private and public lands was $2,015,000 in 1988 (see Table 8). Administrative costs are deducted from the yield tax revenues before the tax revenues are redistributed to the counties. The Oregon Department of Revenue employs approximately 25 people in their forest tax section.

Revenue

Oregon has approximately 8.5 million acres of private forest land under assessment for the yield tax. In 1988, the Oregon yield tax produced 28.3 million dollars in Western Oregon and 2.4 million dollars in Eastern Oregon. The severance tax on public lands generated 3.5 million dollars (see table 8).

* For an explanation of the methodology used to appraise bare land, see the discussion on land valuation in Washington State, page 32.

The Oregon Department of Revenue does not compile information on bare land taxes under the timber. This tax is assessed and collected by individual counties.

The Oregon Department of Revenue administers the yield and severance tax programs and collects the revenue. Yield tax revenues from timber harvested on private lands are redistributed to the counties. 100 percent of the severance tax revenues are retained by the state.

California

California uses a yield tax in lieu of an actual property tax on timber harvested from private and public timber. The yield tax rate is 2.9 percent. An annual property tax is levied on the bare land under the timber.

The methodology to appraise bare land under the timber on private forest land is similar to Washington, Oregon and Idaho.* In 1988, the highest bare land value under the timber was $150 per acre and the lowest value was $19 per acre. The average land value was $66 per acre (see Table 5).

Administrative Costs

The cost to administer the yield tax on timber harvested from private and public forest land was $1.7 million in 1988 (see Table 8). The state deducts administrative costs from tax revenues before these funds are redistributed to the counties.

Revenue

California has approximately 5.6 million acres of private forest lands. These forest lands are referred to as "Timber Production Zones (TPZ)." In 1988, the yield tax on timber harvested from private timberlands produced $12,500,000 (61%) in revenues. The yield tax on timber harvested from public timber produced $8,000,000 (39%). Total yield tax revenues for timber harvested on private and public land was $20,500,000.

The annual property tax on bare land under the timber generated $3,813,000 ($0.68/Acre).

The California Board of Equalization administers the yield tax program and collects the revenues (see Table 8).

* For an explanation of the methodology used to appraise bare land, see the discussion on land valuation in Washington State, page 32.

Table 6

FOREST TAX SYSTEMS COMPARISON

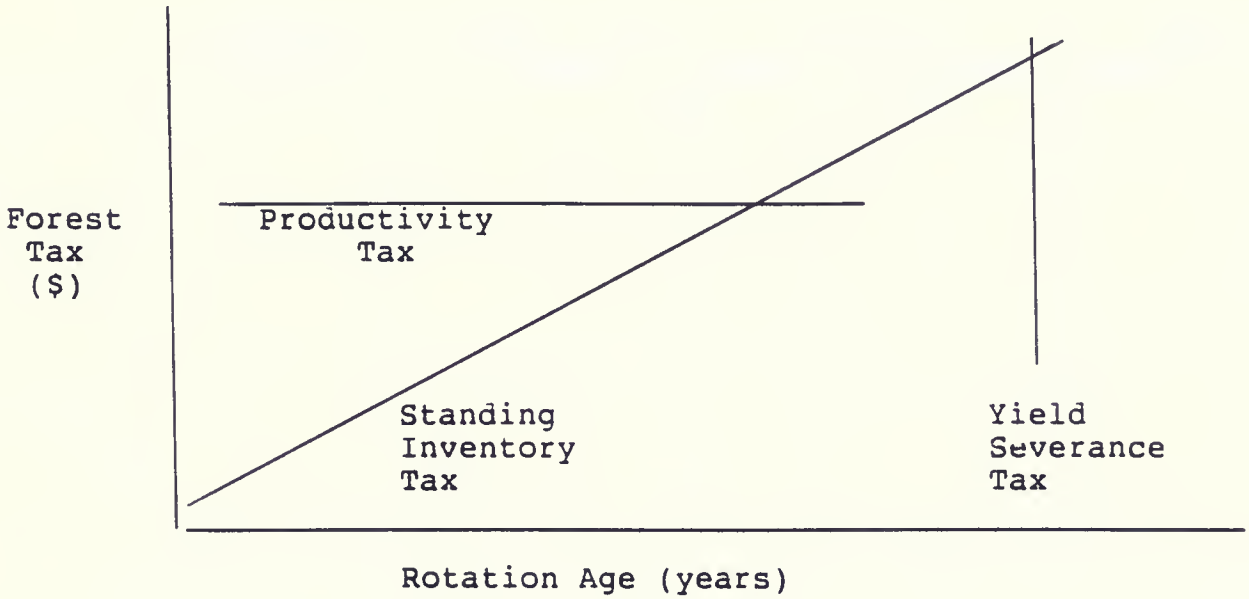


Table 7

TIMBER TAX SYSTEMS IN THE NORTHWEST

	Standing Inventory	Productivity System	Yield		Severance	
			Private	Public	Private	Public
Montana	X					
Idaho		X	X			
Washington			X	X		
Oregon			X		X	X
California			X	X		
B.C. Canada			X			

Table 8

FOREST TAX SYSTEMS IN THE NORTHWESTERN UNITED STATES

State	Tax System: Land	Tax System: Timber	Forest Acres	Yield Tax Rate %	Administrative Costs (1988)	1988 Tax Revenues	Comments
Montana	Grazing "Ad Valorem"	Standing Inventory	3,500,000	N/A	$ 50,000	$ 2,000,000	No Tax on Public Lands
Idaho	Statutory Land Values[1/]	Yield	1,410,000	3.0	$ 34,450[2/]	$ 423,000	No Tax on Public Lands
	Productivity	Productivity	1,865,000	N/A	$ 34,450	$ 3,709,000	
	Total		2,275,000		$ 68,900	$ 4,132,000	
Washington	Statutory Land Values[1/]	Yield	6,848,000	5.0	$1,700,000	$ 57,500,000	Yield Tax on Public Lands
Oregon	Statutory Land Values[1/]	Yield	8,500,000	6.5	$2,015,000	$ 30,700,000[3/]	Severance Tax on Private and Public Lands
California	Statutory Land Values[1/]	Yield	5,600,000	2.9	$1,700,000	$ 24,313,000	Yield Tax on Public Lands

Source: The above figures were obtained from forest tax supervisors in Montana, Idaho, Oregon, Washington, and California.

1/ Land values were determined by the state legislature for each productive land class. These values are updated annually based on the change in stumpage values each years.

2/ Administrative cost reflects state burden only. Assessment functions are done by county assessors. Idaho does not have auditing and compliance functions.

3/ Tax revenue does not include the bare land tax (land under the timber). The Oregon Department of Revenue does not compile this figure. Based on their average bare land values, their land tax probably generates between 5.0 and 5.5 million dollars per year.

ADVANTAGES AND DISADVANTAGES OF FOREST TAX SYSTEMS

Policy makers must weigh the pros and cons of each taxing system when deciding which tax is best for their state. The following is an analysis of the advantages and disadvantages of the standing inventory tax, productivity tax, yield tax, and severance tax in Montana.

Montana's Forest Property Tax System

Montana's forest property tax is based on the standing inventory of timber. The timber tax is based on the present net worth of existing timber inventories.

Advantages of the Standing Inventory Tax System

1. The administrative costs have been kept low for this system, thus a large percentage of the tax dollars are returned to the taxpayer in the form of government services. Unfortunately, the low maintenance level on our forest ad valorem system (approximately 2 percent) has caused a gradual, ongoing decline in the system's accuracy and equity.

2. The system has the advantage of being in place and in operation (with serious drawbacks). Forest tax appraisals have been computerized and tax assessments are being generated.

3. Taxpayer acceptance. The current system has been in operation for more than 25 years and generates approximately two million tax dollars annually. Taxpayers have grown use to this tax system even though very few forest land owners understand how their timberland appraisals are formulated.

Disadvantages of the Standing Inventory Tax System

1. One of the strongest arguments against a standing inventory system is the regressive nature of this tax. A large tax will encourage landowners to liquidate high value, merchantable stands.

2. The tax is an annual tax on forest properties where income production is infrequent. A high standing inventory tax would be biased against long rotation management or poor productivity sites which require longer growing periods to develop merchantable stands. This bias may force some landowners to harvest their timber if the annual property tax is increased.

3. If a change is proposed, it will be resisted by some because of the fear and uncertainty any change will create. Many will suspect the state's motive is to increase their property tax. Inequitable forest appraisals could be corrected with a new statewide forest reclassification and new average stand volume tables.

4. The forest classification is only as current as the aerial photography used and the degree of actual ground review conducted.

5. Maintaining current forest classifications is expensive and time consuming in relation to the tax revenues produced.

Productivity Tax System

The productivity system produces a tax on the productivity of the land or the land and timber combined. The productivity formula produces a site value with forestry and agriculture as highest and best use.

Advantages of the Productivity Tax System

1. The productivity system offers an effective and uniform mass appraisal of all private forest land.

2. The general concept of a productivity tax is easily understood (tax is based on the land's productivity).

3. The administration of this tax is not radically different from the current tax structure.

4. Because the tax is not based on current stocking levels, the administrative cost of maintaining an inventory on standing timber is eliminated. Once forest lands are classified for productivity, the annual administrative cost is lower than either a properly administered standing inventory or yield tax. The productivity tax should also lower the administrative cost incurred by the forest industry under our current forest property tax.

5. The productivity formula allows easy capitalization of net grazing income. It is important to recognize the grazing component on forest lands. In Eastern Montana, timber revenue is often a minor income source. Grazing is the major operation on many of these lands. To ignore the grazing income stream would result in the undervaluation of forest land in many counties.

6. The productivity tax does not penalize intensive forest management. Theoretically, this system encourages landowners to practice better forest management. They would not be penalized with higher taxes for producing timber more rapidly (just the opposite is true with a properly run standing inventory system).

Disadvantages of the Productivity Tax System

1. This system requires a significant up-front cost to establish the productivity classification.

2. The productivity system requires technical data on site productivity. Much of Northwestern Montana currently lacks adequate S.C.S. soil mapping and productivity measurements. Field measurements on "site" trees are difficult to find in many areas.

3. Landowners pay an annual tax even though harvest income is infrequent.

4. A landowner would pay the same tax on a forest parcel whether it is nonstocked or contains a merchantable stand (see Table 6). This may put a burden on landowners with bare forest land or recently reforested lands because they pay a higher percentage of tax to actual value at the front end of a rotation when the timber asset is the least valuable. The reverse is true of merchantable stands approaching harvest. They would pay a lower percentage tax to actual value.

5. Controversy could arise over the calculation of the productivity values. Each component in the productivity formula has stirred criticism in other states by opponents striving to lower the valuations and thus the property tax. In Montana, property types are placed in property tax classes with an assigned property tax rate. The Legislature is able to influence the overall tax burden carried by every property class. A change in one of the components in the formula will not increase or decrease the overall statewide tax while the Legislature controls the tax rate. This should reduce much of the controversy which Revenue Departments face in other states.

Yield Tax System

A yield tax is an excise tax imposed on the stumpage value of harvested timber. This tax is usually administered in lieu of annual property taxes on the timber.

Advantages of the Yield Tax System

1. The tax on timber is deferred to harvest time. For any given forest property tax level, the yield tax is less burdensome to the taxpayer than the annual property tax because the yield tax is deferred until the end of the harvest or investment period. This means that over a rotation any amount of tax collected will have less value based on accepted discounting practices. A dollar paid in the future is not worth as much as a dollar paid today.4/

2. Under a yield tax, a landowner does not pay taxes on timber destroyed by fire, insects or other factors. This is perhaps a disadvantage to local governmental agencies who depend on these taxes.

3. The yield tax does not encourage the premature harvest of timber. All factors equal, rotations will tend to be longer under a yield tax with a less negative impact on the taxpayer than the annual property tax.

4. A yield tax on publicly harvested timber would generate additional tax revenues. These revenues could be returned to the counties or deposited in the state general fund.

Disadvantages of the Yield Tax System

1. Forest landowners have always paid an annual timber tax. If a yield tax is established, a double tax of varying degrees will be incurred on the current rotation. This tax will hit hardest on owners with merchantable timber who have paid annual taxes for a full rotation. The change will have the least impact on owners with bare land or immature timber. States that have replaced their annual property tax with a yield tax have usually phased the yield tax in over several years.

2. The timber industry is very cyclical. Revenue fluctuations make annual budget projections difficult for local taxing jurisdictions. Revenue fluctuations can be mitigated through the use of a Reserve Fund Account. When revenues fall below a certain threshold, funds can be withdrawn from this account.

3. A yield tax will not only cause tax shifts among forest landowners but also between taxing jurisdictions. This tax requires a complex distribution system.

4. Administrative costs may increase for forest landowners and the state. Harvesters and mills would be required to do additional record keeping. Harvest permits and notification requirements would have to be maintained.

5. The yield tax would remove timber from the tax base of local taxing jurisdictions since it isn't a property tax. The tax base for local school districts is used to calculate maximum mill levies, limits on bonded indebtedness and county classifications. The timber tax study done by the 1978 legislative interim committee concluded, that with few exceptions, the loss in taxable value would not be significant. The committee determined that the taxable value on timberland ranged from one to six percent of the total taxable value in western counties. It should be noted, however, that some rural northwestern school districts contain a large percentage of taxable value in their timberland.

6. The yield tax requires strict surveillance of timber harvesting. Portable mills can easily be moved from site to site. Harvesters constantly move in and out of the state. Timber is often cut and transported to mills in surrounding states. Audit and compliance are important functions of a yield tax.

7. The yield tax could be a disincentive to engage in intermediate cuttings which have a marginal economic return to the landowner.

8. The yield tax could be a tax shelter for small recreational and residential tracts (in excess of 15 acres of commercial forest land). Many of these landowners do not plan to harvest timber in commercial quantities.

9. Most states include a retroactive tax provision in their yield tax law. The provision is aimed primarily at developers who enjoy the preferential property tax on agricultural and timberlands then subdivide and sell their property. Unfortunately, county appraisers do not become aware of this situation until a realty transfer is filed with the county Clerk and Recorder. The new landowner is hit with the retroactive tax, not the developer. Most buyers are unaware of these laws. They are usually assured by the previous owner that the property is entitled to agricultural or timber taxation. The new owner assumes his next tax bill will be no different than the bill the previous owner received. By the time the new owner receives his next tax bill, the previous owner escapes all liability.

Severance Tax System

A severance tax is a fixed rate per unit of volume harvested. This tax is usually an add-on tax to a property tax or yield tax.

Advantages of a Severance Tax System

1. Simple and inexpensive to administer on both public and private forest lands.

2. The tax is paid at the time of harvest when the landowner or harvester receives the income.

3. The timber owner does not pay this tax on timber destroyed by fire, disease, insects of other factors.

Disadvantages of a Severance Tax System

1. Equity problems relegate this revenue approach to minor tax status.

2. Taxing jurisdictions will encounter the same revenue fluctuations that the yield tax encounters.

APPENDIX

Definitions

1. "Average Annual Gross Timber Income" means the gross income per acre calculated by dividing the income producible at the end of a rotation period by the number of years in that rotation.

2. "Average Annual Net Timber Income" means the average annual gross timber income per acre minus the annual forest costs per acre.

3. "Capitalization Rate" means the rate (in decimal form) which converts the annual forest income into present net worth.

4. "Christmas Trees" means any evergreen trees severed from the stump that are sold for use as Christmas trees.

5. "Class 13 property" is any parcel or contiguous parcels under one ownership which meet the minimum commercial timberland classifications under 42-20-113, MCA. Class 13 property is taxed at a rate approved by the Montana Legislature for commercial timberlands.

6. "Commercial Timberland" is any parcel or contiguous parcels under one ownership which meets all of the following:

   A. Exceeds 15 contiguous acres of commercial timberland and equals or exceeds 120 feet in width.

   B. Capable of producing 20 cubic feet per acre per year of commercially marketable wood in natural stands.

   C. Capable of producing crops of wood of commercially marketable quality and which can be economically harvested in commercially marketable quantity.

   D. Lands from which timber has been removed but which have not been developed for any other use.

   E. Lands which are converted from another use to commercial timberlands and have established a minimum stocking rate of 150 seedlings or 100 saplings per acre.

7. "Costs" mean the annualized expenses related to producing, maintaining and protecting the forest crop. Protection costs include the fire protection fee assessed by the Montana Division of Forestry, protection from insects, disease and vandalism. Production costs will assume the

expense of natural regeneration. Maintenance costs include the cost of inventory, boundary survey, other consulting fees and security.

8. "Cultivated Christmas Tree Plantations" are any parcel or contiguous parcels which are cultivated on a regular basis to produce commercially marketable Christmas trees. Bonafide Christmas tree plantations will be treated as agricultural land and classified as class 3 property. Christmas tree plantations must also:

   A. Produce $1,500 or more gross income at least 4 out of six years unless crop failure or marketing delay is shown.

   B. Be pruned on an annual basis.

9. "Forest Landowner" means the legal entity which holds the property rights under law to the forest land surface.

10. "Forest Valuation Zones" mean a geographical area of the state consisting of a group of counties, which share similar forest markets. Forest and grazing income and expense data will be compiled for each zone.

11. "Gross Timber Income" means the total potential income calculated by multiplying the average mean annual increment for each productivity class in each productivity region by the total rotation age and then multiplying this volume by the stumpage value for each valuation zone. (MAI * Rotation Age * Stumpage Value) = Gross Income.

12. "Mean Annual Increment (M.A.I.)" means the maximum net annual growth production attainable in fully stocked stands. Volume is usually expressed in cubic or board feet per acre per year.

13. "Noncommercial Timberland" is any parcel or contiguous parcels that do not meet a condition or conditions set forth in (4) or meets one of the following:

   A. Timberlands incapable of yielding commercially marketable wood products because of adverse site conditions or which are so physically inaccessible as to be unavailable economically now or prospectively.

   B. Timberlands withdrawn from timber utilization by law, ordinance, covenant, court order, or administrative order, but which otherwise would qualify as commercial timberland.

   C. Hardwood species.

14. "Other Agricultural Related Income" means annual net income per acre derived from grazing producible on a woodland site. Grazing income will be calculated by using average rents minus costs multiplied by the average carrying capacity (Animal Unit Months) found in each valuation zone. Western Montana will use a four month grazing season and eastern Montana will use a five month grazing season.

15. "Owner" means the person or persons who owns the fee and whom has the right to dispose of the property and also the person or persons whom have a possessory right to land or the person occupying or cultivating it. The equitable owner or equitable joint owners (also termed the beneficial owner) and not the legal or nominal owner possess the ownership for the purposes of classification and taxation.

16. "Ownership" means the right of one or more persons to possess and use a thing to the exclusion of others. The thing of which there may be ownership is called property (70-1-101, MCA). Ownership is a collection of rights to use and enjoy property, including the right of enjoyment, control and transmission to others. Ownership is either absolute or qualified.

17. "Productivity Classes" are a range of site indexes or other growth estimates grouped into classes for the purpose of classification and/or valuation. For taxation purposes, productivity will be defined as the potential cubic volume per acre per year attainable in stands at 85 percent stocking. Productivity classes are defined as site I- 120+ cu.ft/ac/yr (excellent), site II - 85-119 cu.ft/ac/yr (good), site III - 50-84 cu.ft/ac/yr (average), site IV 20-49 cu.ft/ac/yr (poor).

18. "Productivity Region" means a geographical area of the state, consisting of a group of counties, which are similar in average potential growth production by productivity classes. Each productivity region will define an average mean annual increment for each productivity class. An average rotation age will be defined for each region.

19. "Site Index" is a unit of measurement used to indicate potential productivity of a forest land site. It is the height dominant and codominant trees will attain at a given age. The base age will be either 50 or 100 years. Age will be based on either age at diameter breast height or total tree age.

20. "Stumpage Value" means the market value of standing trees on the stump prior to harvest and removal. Stumpage is expressed in dollars per unit of value ($ per thousand board feet or $ per thousand cubic feet). For taxation purposes, real stumpage value will be assumed to be stable over time. A five year moving average shall be used to minimize the effects of short-term fluctuations.

21. "Timber" any down or standing trees of any marketable species, whether planted or natural, which are suitable for commercial or industrial use.

22. "Wild Christmas Trees" are trees grown in a natural forest setting which are pruned and managed for marketing as Christmas trees. Wild Christmas trees are treated as class 13 property.

23. "Wood Products" are any timber products which are severed from the stump and used in some manner for personal or commercial use. Commercial timber species severed from the stump will be assumed to be consumed by man or beast.

LITERATURE CITED

1/ Keegan, Charles E. III., Rodger Bergmeir and Paul A. Moore. 1989. The Forest Products Industry in Montana, 16p.

2/ Figures compiled from Department of Revenue forest appraisal data for 1986 and the 1988 Report of the State Department of Revenue, p. 112.

3/ Interim Study by the Revenue Oversight Committee, 1978. Timber Taxation in Montana.

4/ Information provided by Bob Griffes, former assistant state forester, Division of Forestry, State Lands.

5/ Missoulian, April 21, 1967. Montana Forest Land Tax System to be Studied by Forestry School.

6/ Missoulian, September 6, 1970. Anaconda Wins Court Suit.

7/ Missoulian, January 5, 1967. Logging Road Assessment Subject of Flathead Suit.

8/ Missoulian, January 5, 1967. Class Action Suit Asks $58.8 Million.

9/ Missoulian, November 26, 1970. Five Counties Assail Timberland Assessment.

10/ Missoulian, June 9, 1971. Five Counties Ordered to Follow Board Pattern.

11/ Missoulian, 1971. High Court Hears Timberland Tax Arguments.

12/ William Kirkpatrick. Year unknown. "One Wood Industry's Point of View for Forest Taxation for Montana" Champion International's Timber Tax Proposal. Remarks from panel discussion held in Helena, Montana.

13/ 1988 Report of the State Department of Revenue. Property Class 3, 4, 13, 14, 18, 19, 20.

14/ 1963 Report of the State Department of Revenue.

15/ Figures compiled from Department of Revenue Forest Appraisal Data for 1986.

16/ 1986 Report of the State Department of Revenue, p. 111.

17/ Information compiled from the Montana state and private inventory for working circles 1-8. Publications produced by Montana Department of State Lands and Forest Survey.

18/ Montana Department of State Lands and Forest Survey, 1982. Timber Resources of Lincoln, Sanders, Flathead and Lake Counties. 202p.

19/ Conklin, John B. 1987. Washington's Experience With the Yield Tax. Paper presented at an SAF/FPRS conference on forest taxation, Atlanta, Georgia, May 20-22.

20/ Information provided by John B. Conklin, Forest Tax Supervisor, Washington Department of Revenue.

21/ Klemperer, David W. 1987. Revising Forest Property Taxes: Recent Trends and Policy Questions. Paper presented at an SAF/FPRS conference on forest taxation, Atlanta, Georgia, May 20-22. Proceedings in press.

22/ Clements, Stephen E., W. David Klemperer, Harry L. Haney, Jr., and William C. Siegel. 1986 For. Prod. J. Vol. 36, No. 6, pp. 31-35.

rp36e